TH

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,226	07/12/2004	Hideo Yoshizawa	SHM-15448	3796

40854 7590 06/22/2007

RANKIN, HILL, PORTER & CLARK LLP
4080 ERIE STREET
WILLOUGHBY, OH 44094-7836

EXAMINER	
LAZORCIK, JASON L	

ART UNIT	PAPER NUMBER
1731	

MAIL DATE	DELIVERY MODE
06/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/501,226	YOSHIZAWA, HIDEO	
	Examiner	Art Unit	
	Jason L. Lazorcik	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1,4-6, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Letemps (US 4,966,618) in view of Frank (US 4,074,995).

Letemps '618 teaches a method and apparatus for providing a complex bend to a glass plate. With particular attention to the instant reference Figures 1 and 2b (see below excerpt), Letemps teaches a first step of heating the glass sheet to a softened state in a glass heating furnace (10). The reference then discloses a conveying and bending apparatus designed to receive the heat softened glass sheet and to impart a complex bend both in the conveying direction and in a direction perpendicular to the conveying direction.

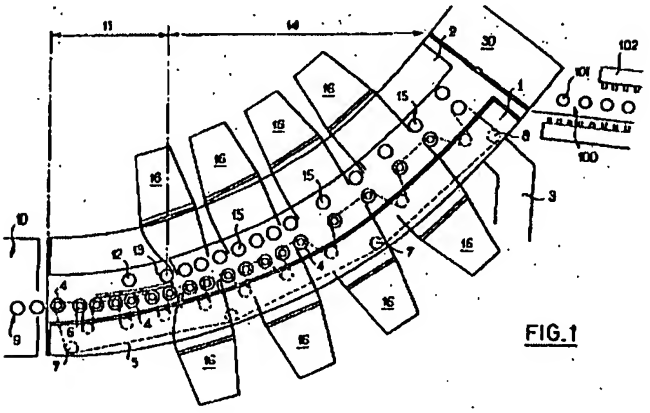


FIG. 1

FIG. 2A

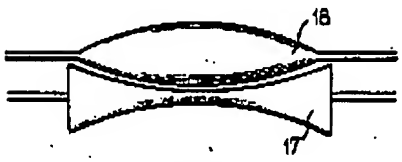


FIG. 2B

Specifically, a first disclosed embodiment of the apparatus which is designed to impart a simple bend to the sheet in the conveying direction comprises (Column 3, line 38 to Column 4, line 4) a plurality of "straight roller" elements (13,4) disposed above and below the sheet glass which collectively "define a shaping bed for the glass plates with a curved profile in the conveying direction". Letemps indicates that rollers (13), which have a rectilinear or "straight" shape (e.g. Fig 2A), "pinch the glass sheet while conveying in the conveying direction" and thereby act as a means for "assisting the advance of glass plate". The sheet is thereafter advanced by pinching and conveying between upper and lower rollers (15, 4) in a tempering zone where the sheet is quenched by cooling air directed from blowing nozzles (16) (**Claim 5, 10**).

Letemps teaches an alternate embodiment designed to impart the previously mentioned complex bend to the glass sheet. In this embodiment, the rollers (4, 12, 13, and 15) are modified to be of the "spindle type" (Figure 2B) to pinch and convey the sheet. In this

embodiment, the rollers are designed such that one roller presents a "center bulging in a curve" and a complementary roller displays "a center wasted in a curve". Although Letemps is here silent regarding the relative bend radius between the conveyance direction and the perpendicular direction, it is the Examiners position that this ratio would have been readily selected by one of ordinary skill in the art dependent upon the design requirements of the final complex bend sheet (**Claim 4,9**). To restate this point, absent any compelling and unexpected results to the contrary, the method and apparatus wherein the respective radius of curvature in the conveying direction is smaller than the radius of curvature in the direction perpendicular to the conveying direction is a merely obvious extension over the prior art teachings.

Although Letemps teaches an embodiment wherein the rollers are straight and an alternate embodiment wherein the rollers are of the "spindle type", the reference is silent regarding the claimed invention which comprises a step of bending with a plurality of straight rollers and a step of bending with complementary convex and concave shaping rollers.

Frank '995 teaches a method of reducing edge kinking in heated glass sheets shaped by roll forming in a process analogous to that disclosed in the Letemps '618 reference. The reference teaches that it is advantageous to "superficially" cool one or both surfaces of the glass sheet after its exit from a heating furnace but before contact with the shaped rollers of the forming station. With reference to figure 2 of the instant

reference (see excerpt below), Frank teaches a first step of conveying a heated glass sheet using straight rollers (25) prior to bending the sheet with the concave/convex forming rollers.

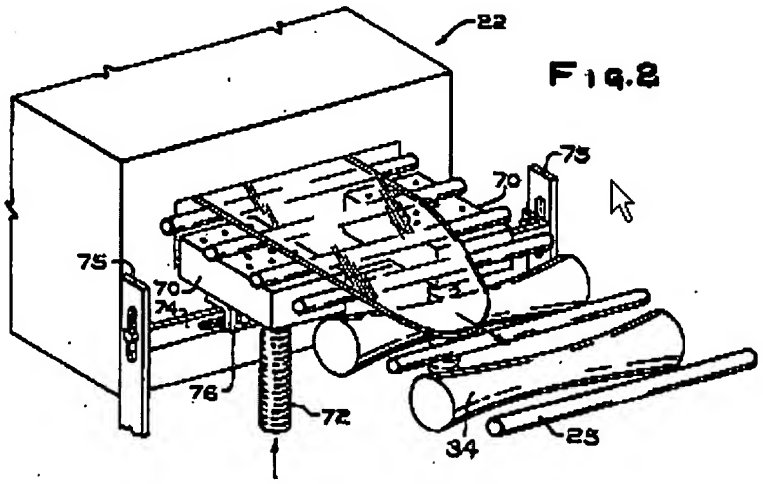
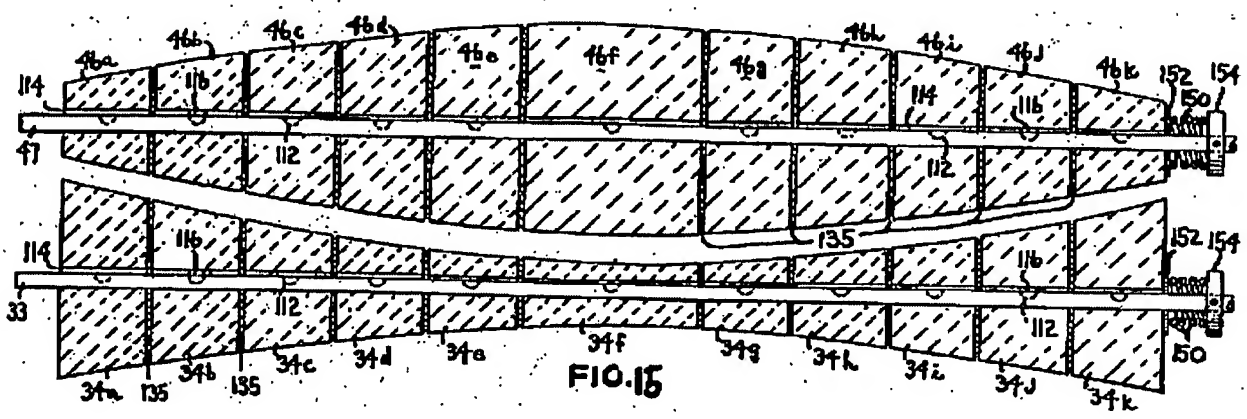


Fig.2

To summarize, Letemps teaches an apparatus comprising straight rollers or curved forming rollers while Frank '995 teaches that glass sheet edge kinking can be minimized by conveying a heated sheet with straight rollers prior to bending with the curved rollers. Therefore in view of the collective prior art teachings, it would have been obvious for one of ordinary skill in the art at the time of the invention seeking to impart a complex bend in a heated glass sheet by the Letemps '618 apparatus to first convey heated glass sheet through a section of cooperating straight rollers. This would have been a merely obvious modification of the Letemps method and apparatus for one seeking to minimize or eliminate edge kinking in the glass sheet as taught in the Frank '995 reference.

Claim 2, 3, 7, and 8 are rejected under 35 USC 103(a) as obvious over Letemps (US 4,966,618) and Frank (US 4,074,995) as applied to claims 1 and 6 above and in further view of Frank (US 3,701,644).

Letemps teaches forming a complex bend in a heated glass sheet using cooperating convex and concave rollers, however the reference is silent regarding the particular construction details of this pair of rollers. Frank '644 teaches a method and apparatus for bending a heated glass sheet in a direction perpendicular to the sheet conveyance direction. Frank '644 further related the detailed structure of a pair of cooperating convex/concave forming rollers according to Figure 15 (excerpt below)



FIO.15

The reference specifically discloses (Column 3, lines 18-49) that, "in order to reduce the hazard of the rolls marring the glass surface, the shaped rolls are preferably segmented" (**Claim 2,7**) and that "at least one of the segments of at least one roll of each pair of opposing complementary shaped rolls driven at a peripheral speed

substantially equal to the speed of the speed of glass sheet movement along the conveyor. Each segment of the segmented shaping rolls that is not driven is preferably free-running so that the peripheries of the shaping roll segments do not rub relative to the glass surfaces". (**Claim 3,8**). In view of the instant disclosure, it would have been obvious to adopt the concave/convex roller pair structure described by Frank '644 for the rollers in the Letemps '618 apparatus. This would have been an obvious modification for one of ordinary skill seeking to "reduce the hazard of the rolls marring the glass surface" as indicated by Frank.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Lazorcik whose telephone number is (571) 272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

JLL